The 2025 ESCC/CTB Roadmap

Jean-Louis Cazaux, CTB Chairman

ESCC / CTB
European Space Components Coordination
Components Technology Board

What is the CTB?

- **CTB: Component Technology Board**

- An ESCC body, subordinate to the SCSB *(Space Components Steering Board)*, along with PSWG *(Policy & Standard Working Group)* and MPTB *(Materials & Processes Technology Board)*

- CTB has been created in **2002** according to ESCC Charter 00000, Defined by ESCC 10400
  - *The CTB is charged with* ***the formulation of strategic programmes and work plans for technology research and development*** *in the area of* ***European EEE space components****.*
  - *It* ***harmonises*** *the collectively funded component research, development, evaluation, qualification, standardisation and quality assurance activities.*

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CTB Organization

The Plenary Board

1) Space Agencies: esa, cnes, European Commission, asi (Agenzia Spaziale Italiana), UK SPACE AGENCY, DLR

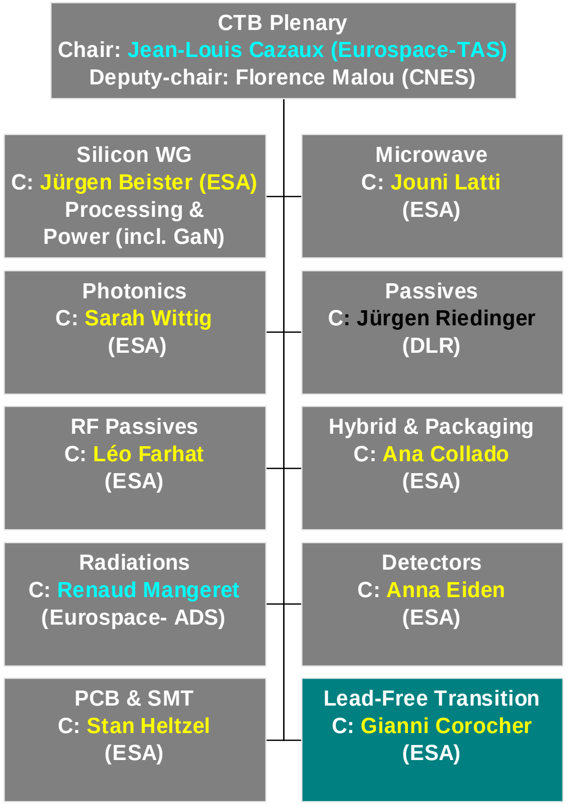
2) Equipement Manufacturers: ASD-EUROSPACE (The Space group in ASD), ThalesAlenia Space, AIRBUS DEFENCE AND SPACE, OHB, beyond gravity, ALTER TECHNOLOGY

3) Component Suppliers: ST life.augmented, MICROCHIP, United Monolithic Semiconductors, infineon, Radiall, TELEDYNE e2v Everywhereyoulook, 3D plus, ISABELLENHÜTTE

+ Observers: imec, EUROPEAN DEFENCE AGENCY

➔In total, it involves about **300** individuals from **110** different organizations

The Working Groups



CTB Plenary
Chair: Jean-Louis Cazaux (Eurospace-TAS)
Deputy-chair: Florence Malou (CNES)

Silicon WG
C: Jürgen Beister (ESA)
Processing & Power (incl. GaN)

Microwave
C: Jouni Latti
(ESA)

Photonics
C: Sarah Wittig
(ESA)

Passives
C: Jürgen Riedinger
(DLR)

RF Passives
C: Léo Farhat
(ESA)

Hybrid & Packaging
C: Ana Collado
(ESA)

Radiations
C: Renaud Mangeret
(Eurospace- ADS)

Detectors
C: Anna Eiden
(ESA)

PCB & SMT
C: Stan Heltzel
(ESA)

Lead-Free Transition
C: Gianni Corocher
(ESA)

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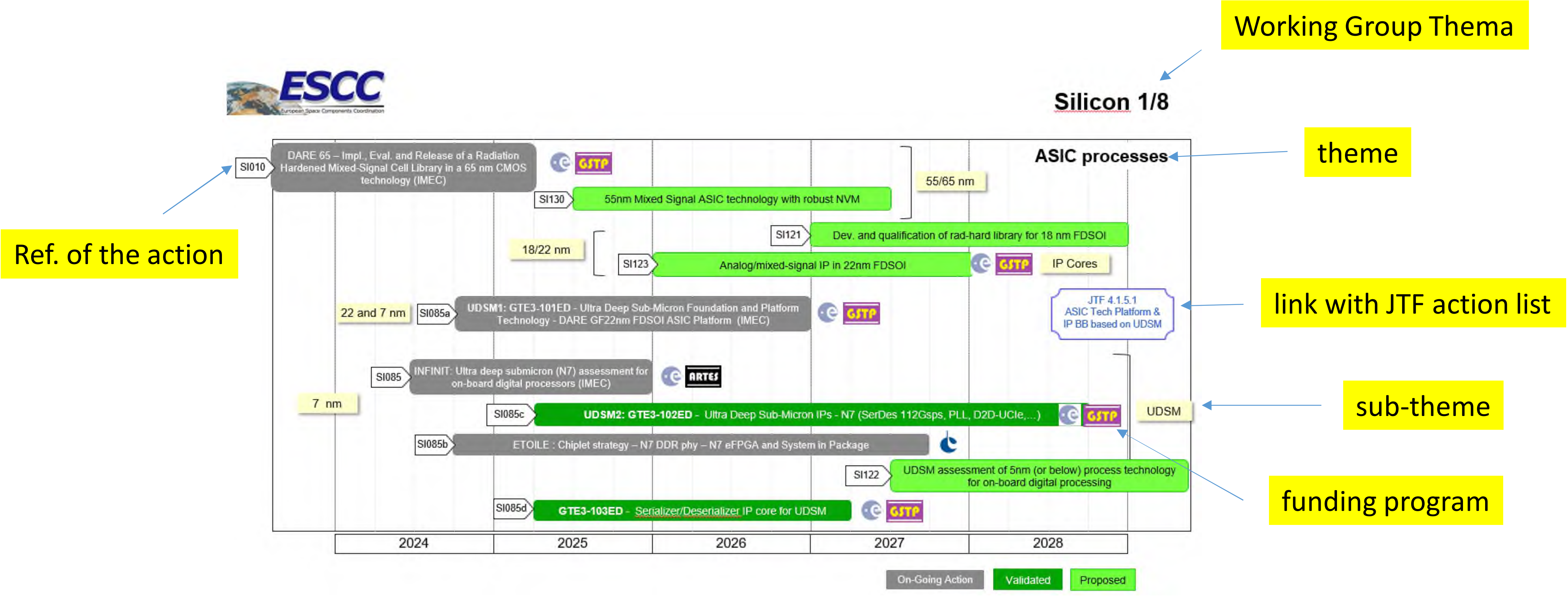
The CTB Roadmap

- A graphic representation of all EEE activities:
- Supported by ESA’s intruments (GSTP, TDE, ARTES, others), DG-DEFIS’s Horizon EU projects, CNES, DLR, ASI, …
- It presents recent major completed activities / on-going activities / upcoming programed activities / future recommended activities

A tool to understand the coherence, to avoid duplication, to track missing items, to underline the priorities

The CTB Roadmap

- Each WG has its roadmap. Within each roadmap, the actions are classified by themes
- Only priority P1 and P2 activities are represented in the graphical RM, but not distinguished
- Time scale is 5 years. The actions are positioned to the nearest quarter.
- Update every year



Working Group Thema

theme

Ref. of the action

link with JTF action list

sub-theme

funding program

Axis and priorities

Working Group	Axis, priorities
Silicon	UDSM for ASIC, FPGA, µP => 7nm ; IP s ; chiplets GaN for power ; power ICs
Photonics	Transceivers ; components for Quantum Apps ; PICs
Detectors	CIS ; High end IR ; High end VI ; High end CCD ; Read-Out IC s ;
Microwave	GaN for HF ; SiGe or Si IC ; Packaging
Passives	RLC ; Energy & Power ; cable assemblies ; oscillators
RF Passives	Integrated micro passives ; switches ; RF connectors
Hybrids & Packaging	Non hermetic ; High speed / High freq. / power / photonics =>> SiP
PCB & SMT	Supply chain ; Base materials ; High density ; HDR & High freq. / Power Mngt
Radiations	Improve models ; New components ; Methodology ; Need of new facilities

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Using the CTB Roadmap

This is the new edition and it is much improved now

Very encouraging feedbacks from all stake-holders. For example:

- The reference of placing new R&T CNES
- Informing for EU DG-DEFIS to define new Horizon Europe plans for EEE
- A reference for EDA to coordinate what they do for Defense with what we do for space
- A precious tool for ESA currently thinking for next TDE and GSTP activities
- A handy document in TAS to see what is going on and what is forecast in the landscape

My personal recommendation is the keep it regularly updated and maintained

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A collective work

- My deepest thanks to Jean-Luc Roux et Florence Malou who put a lot of personal time and energy to arrange and present this work
- Thanks to all WG Captains, Jürgen Beister, Agustin Fernandez Leon, Jouni Latti, Sarah Wittig, Iain McKenzie, Anna Eiden, Ana Collado, Sophie Dareys, Stan Heltzel, Jussi Hokka, Gianni Corocher, Léo Farhat, Joaquin Jimenez, Jürgen Reidinger, Renaud Mangeret, Christian Poivey and also to Karin Lundmark for their support, their patience and fundamental contributions
- Thanks to all my colleagues at the CTB Plenary board (many are in this room)
- Not to forget my warmest thanks to Holly Krijgsman for her precious help and assistance in all my tasks of chairman

THANK YOU
FOR YOUR
ATTENTION